PRIVATE

ENTERPRISE

magazine.

FEBRUARY
1985

ISSUE 4
An I.E.U.G publication



Will Enterprise get their mouse?

SCREEN Dump

EXDOS review

Latest Software reviews.

Colour SELECTION

Stereo AMPLIFIER

Offers

Bad news this issue is a price increase on disk drives, going from £105 to £115 and £180 to £195 on single and twin drives respectively.

There have been no new software releases in the since last issues, but a lot is in the pipe-line. We will let you know when they arrive.

Last issue we printed 'FORTH' was available on ROM. However, as we found out later, this is not so. It is only available on TAPE at the moment. The price has however come down to £17.50.

NOTE. At present these offers are only available to I.E.U.G members RESIDENT IN THE UK.

SOFTWARE

(All prices include postage & packing)

LISP, FORTH (ROM cartridges)	....£25.00	(save £5.00)
DEVPAC (cassette)	....£17.50	(save £2.50)
Cyrus Chess II	....£11.50	(save £1.50)
Colossal Adventure, Raid, Nodes of Yesod, Beach Head, Machine Code For Beginners, Tiny Touch 'N Go	....£8.50	(save £1.50)
Heathrow ATC, Steve Davis' Snooker	....£8.00	(save £1.00)
Beatcha, Jack's House of Cards, Airwolf, King of the Castle, Fantasia Diamond, Word Hang, Animal Vegetable Mineral, Happy Numbers, Happy Letters, The Abyss, Adventure Playground, Castle of Dreams, 3D Starstrike, Devils Lair, Sorcery, Mordons Quest, Spanish Gold, Chains, Wizards Lair	....£7.00	(save £1.00)
Dictator, Games Pack 1, Five in a Row, The Market	....£5.50	(save 50p)
IEUG's Greatest Hits Volume 1	....£2.00	

HARDWARE

CUMANA single 3.5" floppy disc drive £115
(complete with power supply, mains cable and interface cable.

CUMANA twin 3.5" floppy disc drive £195
(complete with power supply, mains cableand interface cable.

STOP PRESS

All six level nine titles featured in P.E now available with discount. Dungeon Adventure, Lords of time, Return to Eden, Snowball, Collosal £8.50 Emerald Isle £6.00inc.

DELIVERY.

As we buy our software trade, we have to comply to trade regulations, ie, a minimum order of £50. Therefore, in some cases a delay of up to 3 weeks could be encountered.

ALL ORDERS TO BE SENT TO
I.E.U.G, 60 HOLDENHURST AVE, FINCHLEY, LONDON, N12, OHX.

Editorial

Enterprise computers has to be the unluckiest computer manufacturer about. Right from the very start they have been plagued with bad luck. The initial launch was held up for over eight months due to problems with the nick chip,and many of the companies contracted in to work on software and peripherals have been late or in a lot of cases not turned up with the goods altogether. Their present position in the market is, however, not entirely due to being constantly let down or to the vast amount of bad luck they have encountered. A large burden of blame has to be given to very poor PR. They have an excellent machine but have failed to make the outstanding features known in their adverts or anywhere else in the public eye for that matter. They have also recently built up a very good quality selection of software and hardware but have again failed to let the press know about them or test them. The publicity generated by a good review is as good as any ad, if not better, and a damn sight cheaper. This situation concerning their PR is an important one and should be rectified as soon as possible.

Finally I'd like to return to a subject that we always bring up, that of contributions from users. Whilst we are getting a small response from members in this direction it hardly comes to much. I don't really wish to criticize any body but we are a non profit-making user group and that means we don't get paid for our work. So, all that we do is voluntary and done in our spare time. This, for some of us, takes up all of it. Having to write an article takes time so if we have to write all the articles as well as produce the magazine and run the user group, something is going to suffer. In the case of this issue it is reflected in the delivery date, but next issue it might be the contents and quality of 'Private Enterprise' that will suffer.

Tim Box

PRIVATE ENTERPRISE magazine. Jan/Feb 1985

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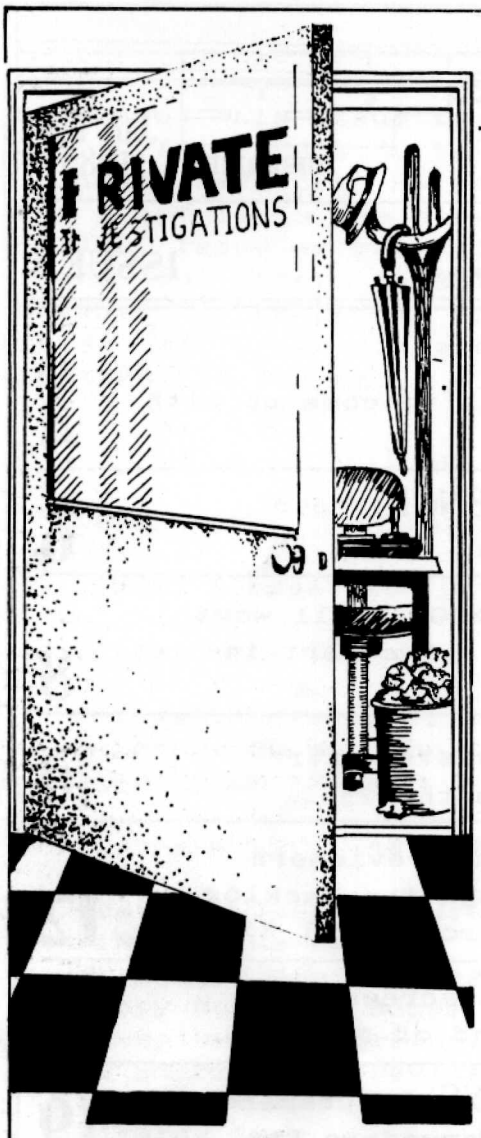
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THE INDEPENDENT ENTERPRISE USER GROUP

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ENGLAND.

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News Desk



Well done Aztec

Aztec don`t seem to be having a lot of luck at the moment. Not only are they risking the Wrath of the Gods by not sending us a joystick to test, but it seems they have been annoying both Enterprise and Entersoft.

Enterprise has at last received examples of the long awaited mouse (or should I say RAT judging by the size of it - no, that was a flop by Cheetah). The actual hardware doesn`t seem all that bad, although it feels a litle sluggish to my untrained hand. The mouse sits under the palm of the hand, if you`ve got big hands, and has three buttons. The centre one acts as a fire button, in fact the whole unit imitates a joystick and so can be used with software designed to operate with a joystick. The other two buttons switch off recognition of vertical or horizontal movement, allowing for dead straight movement in either direction - a very useful feature.

Unfortunately the software supplied by Aztec to run with the mouse apparently isn`t quite up to the same standards as the hardware (I say apparently because as yet I haven`t seen a working example - none of the copies Enterprise had would load when I went down there so I can`t give a first hand opinion) and most of the second hand opinions are unprintable. According to Enterprise the software has had to go back as it "requires more develop ment for commercial purposes".

Aztec have had worse luck with Entersoft, they`ve returned their software - the Basic 'compiler' - and told them to keep it. The story of the compiler is almost as long and protracted as that of the mouse, with a number of delays and false starts. In the end Entersoft have decided that the speed increase offered by the final version is simply not good enough - at best you`d get about a six times speed increase, on average a two to three times increase which, considering the speed of good old I.S.Basic, isn`t too impressive.

Aztec say that the compiler is relatively slow because they were having to stick with B.C.D. for numerics which is notoriously slow, and that much greater speed increases could have been attained with an integer compiler.

Cumana drives up

Bad news this month for anyone after a disk filing system. There have been recent price increases from disc drive manufacturers Cumana. Their latest price list puts single 3.5" drives at £129.95, and double drives at £219.95. Anyone interested in 5.25" drives will now have to fork out £159.95 and £ 289.95 for the single and double drives.

These price increases have been blamed on the recent fall in the value of Sterling against the Yen, in fact Sterling dropped by some 12% against Yen in the second half of January alone.

On top of this, there have been recent shortages on drives causing delays on the normally swift turnaround that Cumana has. Apparently discs drives are being snapped up as soon as they arrive at Cumana - that`s why a number of you are still waiting for drives from us.

There is also going to be a price increase from Mitsubishi soon and this is likely to put prices up even higher. So get them while they`re hot!

I-S DOS out

IS-DOS, the second disk operating system from Enterprise, is now finished and everyone who has sent off for it should have received it by now.

This system allows CP/M 80 to be run on the Enterprise and will be shipped to users on either single sided 40 track 5.25" or single sided 80 track 3.5" discs, depending on what type of drive they have. These discs will contain the operating system, several transient commands for disc managing, an introduction to IS-DOS and as a bonus the 128K demo program.

This format, i.e. the minimum available for each disk size, has been adopted as the Enterprise standard. This means anyone contemplating buying an 80 track 5.25" drive should make

News Desk

sure that it's switchable to 40 track mode, otherwise it may not be possible to use off the shelf Enterprise programs with the drive.

Enterprise are currently talking with a number of major software manufacturers about converting their CP/M software for the machine - more details as we get them. Also it seems that I.S. is trying to put forward IS-DOS as an industry standard 8-bit operating system and will be producing packages of their own for the Enterprise.

Mc.Intyre success?

The recent mail order offers run by McIntyre and Enterprise seem to have been a success, I think. The problem is that both firms are keeping their cards fairly close to their chests.

It hasn't been possible to get anything definite from McIntyre, other than the fact that there will not be a retrospective shipment of monitor leads.

Enterprise have been a little more open, emphasising that the campaign has "got the machine into the public eye", so much so, apparently, that people are walking into Harrods and asking for the machine by name. When asked for more specific figures I was told that the campaign "went surprisingly well considering that it was a high price product selling off the page".

We all hope that the campaign was indeed a great success, it had better be as it was the only time that the average punter saw the Enterprise being advertised. The Enterprise may well be the BMW of the home computer world but even 6.35 CSi's don't sell themselves, well not quite.

ASMON & MACRO-D

There are a couple of serious software packages worth looking out for in the coming months.

The first, ASMON, a monitor/disassembler/assembler, will be available on ROM cartridge, some 32K of ROM to be precise. It comes from Denmark, and first impressions are very favourable. It uses menus extensively, and seems very user friendly. There is just about every feature you could think of, including the facility to opt for either an English or Danish character set (I can't imagine how we survived this long without it !).

We will be bringing you a full review as soon as we can get our grubby little hands on a final version.

The second package is a database system running under IS-DOS. MACRO-D has been available for some time, but only on larger machines and with a huge price tag. The price on the Enterprise should be well under the £100 mark which is very good value for a system that allows you to custom build your own filing system, has a built in 200+ column wordprocessor - achieved by using horizontal scrolling - and has facilities for list processing and leaflet formatting amongst its features. The only snag is that you will need two 720K drives to run the program.

It looks as though people are at last taking the Enterprise seriously (how many times have we said that ?), and if this trend for ultra high quality software continues then the Enterprise should at last start getting into the public eye.

I.E.U.G's first

For the few that didn't attend - "vee haf your names und addresses" - last November's user group meeting went very well. Some fifty-odd eager users attended the day long meeting and everything seemed to go very well (if there was anything you didn't like please let us know).

Guest of honour was Steve Groves, head of Technical Support at Enterprise, who gave a short talk and question and answer session - guess which five asked most of the awkward ones.

Also at the meeting were disc drives, a Speakeasy, software deals and Tim's digitiser, which refused to work despite the child sacrifices.

We are planning our next meeting for early April, not the first of the month as has been suggested by one person not a million miles from the art department. As well as more fabulous demos and deals we are hoping to have Keith Elliot from Entersoft along as a guest speaker.

Christmas bonus

Christmas Mc.Intyre buyers can now get a monitor cable dispatched to them free of charge by writing to Enterprise with proof of purchase.

Enterprise Ideal micro

Enterprise computers have been chosen for a working display on the Wimpy Homes complex at the Ideal Home Exhibition in London which runs from the 4th-31st March.

There will be two machines on display, one running games and the other business software.

The Wimpy home is shown in the March edition of Ideal Home Magazine.

PRIVATE Correspondence.

gossip, outrage, it's your page.

Welcome to issue fours Private Correspondence. As editor of this section I can take advantage of the space to hand out my apologies.

To start, with apologies to the people I was unable to answer personally. As this is the most time-consuming part of my duties it sometimes has to take a back seat to more important things like writing articles. Also sorry to the people who joined recently and who had to wait for their back issues to arrive. We ran out of issues two and three and had to have them reprinted.

With that out of the way we can look at this issues letters. Space prevents me from printing all the letters but the ones I have chosen represent the majorities views.

Dear Private Enterprise,

As new members, my husband and I have only just received the three issues of your magazine. And may we say that congratulations are in order. We have only had our Enterprise 128 since xmas, and are still getting to know it. We had a spectrum 48k before this and find the Enterprise far, far superior (which of course it should be!)

Now to a few points. Firstly , on reading your review of Steve Davis Snooker, may I say that our copy works perfectly on the 128. I don't know whether the game has been amended since your article. We find the game extremely enjoyable, (being avid snooker fans!) and as simulation games go, this one is very well done.

Secondly, the article on I.E.U.G's PCW Diary in issue 2, was fantastic. I was howling with laughter. (this is my kind of humour!) Congratulations, for this article. Your magazine is riddled with very humorous quips, please keep it up. It is seldom in reading computer magazines that one can have a good giggle.

Now to a serious bit. Can you recommend a book, with which I can understand better the basic language and indeed understand programming. As a former Speccy owner and having just mastered the use of the machine and the formation of programs, I am a bit confused by the differences with the Enterprise. Ive already noticed less punctuation and far easier to read program lines, but I'm still having problems! I have tried converting Speccy programs to the Enterprise, but when I come to a 'PEEK' command, the computer doesn't understand. I know this is ignorance on my part (weep weep) so can you help me?

Thank you for a wonderful magazine (it doesn't need glossy paper and colour: the content is enough). By the way, I have a thermonuclear warhead and shall be pleased to dispose of the 'Commodore rap' for you!!

Maria Ward.
KENT.

TJB. As with all letters we print, there is always a bit of praise (we don't print them otherwise) but this one is special. Praise like this is most appreciated,it makes all our work seem worthwhile. Enough of the grovelling on with the answers. The only book I can recommend that has any relevance to the Enterprise is SUPER PROGRAMMER from SIGMA PRESS (the programs being written on the Enterprise). As for converting progams over from the speccy, it is probably worth will starting again from scratch as you can, in most cases, do a better job taking advantage of the power of IS Basic to do things in one command that the Speccy took two to do. As for peeking and poking, after rewriting the program you should find you don't need it. But if you do then think hard about using it, the two systems are completely different and it would take a long time to find the correct address to use. As for the thermonuclear warhead, hang on to it, we might need it to terminate the 'Commodore rap' once and for all if it rears its ugly head at the next PCW show.

Dear Sir,

Just a simple question. Early Enterprise advertising said other 'basic programs' would operate on the Enterprise one day. I have since read this would be impossible. Is this so?

My young son tends to lose patience with the Enterprise because he can't use his school learning experience in BBC Basic on our Enterprise 128. Is there a converter available and how does it work?

D.H.Daines
SURREY.

TJB. I am told the convertor is currently available, though I have only seen the preliminary versions. The convertor works in three parts, first by converting the original tape to Enterprise format, then by converting the listing over to Enterprise commands and finally by adding routines to programs for special commands that the Enterprise does not have like calculated 'GOTO's.

Private Correspondence

The end result, after debugging, is an Enterprise program, so you have to know IS Basic very well to use it properly.

Dear Ed,

I was shocked to read the letter by John Smith in issue 3, slamming the programs I supplied to your magazine in issue 1. Instead of condemning them the way he did, he should himself supply programs so that the majority of users may learn techniques on how to program more efficiently.

As it happens though Mr Smith, I supplied the core of the programs which were then enhanced by the I.E.U.G team. I must give Mr Smith full marks for spotting bits of my previous experience in Microsoft basic, having spent a few years or so programming with it.

However less of the inter-group war, I have a few questions and hints.

(1) How can I recognise what charactor is at a certain position on a GRAPHICS screen?
(2) How can I obtain a 'solidfill' like plot 85 on the BBC and 'FILL' on the QL and not the boundary system using the paint command?

Finally some tips.

Try the following.

```
FOR I = x TO y STEP 100
PLOT 640,360,ELLIPSE 200,I,
NEXT
```

Using these values	X	Y
	27000	37000
	47000	52000
	92000	99000

NOTE Max elipse possible is 99,9999, 99,999.

Chris Moore.
DEVON

TJB. There is no way I know of to recognise a charactor on a graphics screen as the character is drawn into memory by EXOS rather than being generated by the NICK chip from an ASCII code . Saying that though, the 80 column screen is really a highres screen, so there might still be hope. Suggestions anybody? I'm afraid the boundary system is the only FILL command EXOS supports.

Dear I.E.U.G

I enclose a few questions, but first the preliminary praise to get you softened up. Your publication is a real god-send; no longer am I alone and in the dark. The article on HEX codes was fascinating! Really superb work.

And so to the questions. What is a 'High pass filter'? or come to that what is a 'Low pass filter'? What is 'Ring modulation', need I go on?

I refer, of course, to the marvellous sound options which I regret to say are a complete mystery to me. I would be most grateful if you could explain their meaning. Finally a few suggestions for user participation in yourmagazine. How about getting a few gamesmen to write in to show off their highest scores in various games, or to give out adventure game tips.

S Barrick.
HERTS.

TJB. You bring up some very good points. While I do have some idea what they do, it would take too long to explain, and would probably be wrong. Someone out there must know exactly they mean and what they do, so if you do please do us all a favour and write in with an article and explain the mystery.

I like the idea of a high score table, but lack of space this issue prevents me from including one. However next issue I will include it, so start sending in your high scores and playing/adventure tips etc.

Dear sir,

Having pondered over superlative regarding the first annual user group meeting, I have decided that they are inadequate and the best compliment is "Please could we organise them more often"?

The meeting was flawed, in my case, only by the fact that I bought my children and their impatience necessitated my early exit.

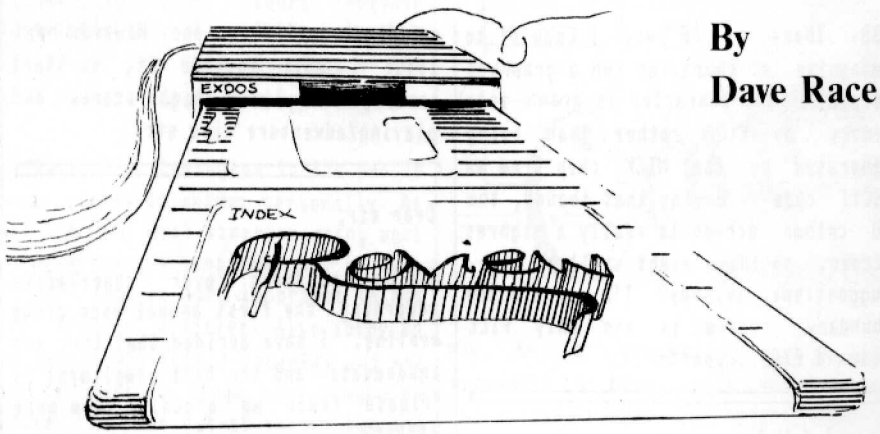
A Dickson.
London.

TJB. The user group activities page has news on the next meeting date, but I'm afraid we are restricted in how many meetings we organise by cost. As we are not a very rich user group there is a trade off between meetings and the magazine: needless to say the mag comes first.

COMMENT

Last issue I talked about writing to the computing press plugging the virtues of the Enterprise. Since then I have not seen one letter from an Enterprise owner (except mine that is) . You, the owners of an Enterprise, are in the best position to know the power of the machine yet; no-one seems bothered to tell anybody else about it. Is it any wonder you never read about the Enterprise in the press if you don't give them anything to write about. I don't see this apathy from Amstrad owners!

A long hard look



By Dave Race

"In the beginning was the word and the word was EXDOS. Once upon a time all home computers used magnetic tape for storage. However, this proved to be slow and unreliable, so many machines went on to use fast and flexible floppy discs - unfortunately many of the operating systems turned out to be astoundingly user unfriendly. Eventually a couple of machines evolved further and went on to magnetic tape, which proved to be slow and unreliable ...oops !

Now Enterprise has released EXDOS, and it knocks every other home computer DOS I've seen for sixpence - it hammers a fair few business ones as well. EXDOS can be hooked up to a maximum of 4 drives, chosen from a vast range; either 3.5 or 5.25 inch with any combination of densities and sides. The only condition is that the drive must conform to the Shugart 410 standard (this is the type used by the BBC micro so there shouldn't be any problems with availability). This will also be a boon to anyone upgrading from the Beeb, as they will still be able to use their old drives.

When you buy EXDOS you get the interface, a hundred-odd page manual and a warranty/registration card which you must send off to obtain IS-DOS (this is a second operating system which I'll discuss later). As we said last issue, the interface comes in two parts which add some seventeen centimetres to the right hand side of the Enterprise, and don't do a lot for its appearance. The reason for having two parts is that the interface itself will plug into the fabled base unit when it appears which will have female connections. The adaptor also has a separate power input socket, so that you can provide extra power for the interface if you live in an area with dodgy mains. To be honest, the two parts fit together well and I've had no problems with faulty connections.

Before connecting up anything, however, it would be wise (if not essential) to read chapter 5 in the EXDOS manual. This provides very clear instructions on what goes where and in what order, and even has a short troubleshooting section to get you out of trouble. In fact the whole manual is well written, overall much better than the Basic manual. There are very few misprints and on the whole it is easy to follow. As well as giving detailed descriptions of all the EXDOS commands it has sections on choosing disc drives, system variables and error messages - it even has a chapter on how to power up drives designed for the BBC. It is nice to see that the standard of error messages started with EXOS is continued in EXDOS, there are some 34 new error codes covering just about every situation you could think of - and a few you couldn't. Another plus point is the section on system variables, this lists 5 new variables and (surprise surprise) gives details on what each one does - another improvement from the Basic manual.

Once everything is set up correctly and the power is switched on, the first thing you'll notice after leaving the start up page is that you have some 3.5K less to play with. This memory is taken up by EXDOS for various functions but considering the large memory available on the 64, let alone the 128, it shouldn't prove to be a problem. EXDOS is now installed in the machine in the same way as the word processor or Basic and can be called at any time.

It is possible to use any EXDOS command by prefixing it with a colon, however if you type :EXDOS, you are presented with a purple command window with the heading "EXDOS command interpreter" and the EXDOS version number. This window uses the colon as a prompt and thus saves on a bit of typing; however the really powerful feature is that you can mess around with files, change directories or even load a module or two without disturbing what you were doing before, because by pressing the escape key you exit from this window back to the point where you left off. This facility is available from the word processor - simply press F8 and type "EXDOS", you will be presented with the purple screen and can then work with EXDOS as normal - checking which disk a particular article is on for instance - and at a press of a little green key you're back in the word processor without any lost text (the cursor will even be in the same place !) .Alternatively you can use any EXDOS command after pressing F8 and it will be executed normally. If, for instance, you type DIR the current directory will appear in the text. All in all, this is one of the most attractive features of EXDOS; it makes

A long hard look

for a very powerful and user friendly system which many business systems would find hard to match - for instance, try getting a full directory from an Apricot whilst in, say, Wordstar and see how far you get.

Incidentally, EXDOS is not only accessible from any language as one would expect, but also from extensions such as Cyrus Chess. In the case of Cyrus simply select the I/O option and type the usual :EXDOS, the familiar purple screen will appear and you will be able to use EXDOS normally. When finished, press the escape key and you'll be back playing chess

EXDOS bears more than a passing resemblance to MS-DOS, in fact anyone who is familiar with MS-DOS should find EXDOS very similar ...except EXDOS is a bit more user friendly. For instance, as with most machines the Enterprise has an internal clock which can be set by the user; on most computers the way the time is typed in is crucial - some machines use only 24 hour clocks, others require colons or spaces between digits and won't accept anything else - even the Enterprise is guilty of this if you're working from Basic. This can be a real pain, especially if you work with more than one machine and have to remember the format for each. EXDOS is different, not only can you use just about any symbol between digits, but you can decide on what format the time and date will be printed in.

The front end of the operating system isn't the only similarity between EXDOS and MS-DOS; EXDOS is also MS-DOS file compatible. This means that the Enterprise is capable of reading files written using MS-DOS, so you could load in files from any computer which uses MS-DOS and work with them on the Enterprise. Note though that this doesn't mean you can run MS-DOS programs; you would need a 16 bit machine to do that.

Incidentally, EXDOS seems to be very good at reading other machines' discs. So far I've seen it reading discs from the IBM PC, Apricots, Atari 520 ST and even Amstrads (it was using an Amstrad drive at the time).

Discs can be formatted as single or double sided, 40 or 80 track, 8 or 9 tracks per sector - the 8 tracks per sector option provides disc compatability with ACT computers. If you own a double sided, 80 track drive all the above options are open to you, simply by giving a series of parameters after the FORMAT command. This means that you can always produce discs that can be read with the minimal 40 track, single sided system. All told, this gives you a maximum formatted disc capacity of 713K, not an inconsiderable amount of memory. Put another way, if your average program length is 12K, you will be able to get about 60 programs on a disc. Keeping track of that number of programs can be tricky, especially when you are restricted to 11 letters in a filename - 8 for the name and 3 for an extension. This brings us around to the idea of directories and sub-directories.

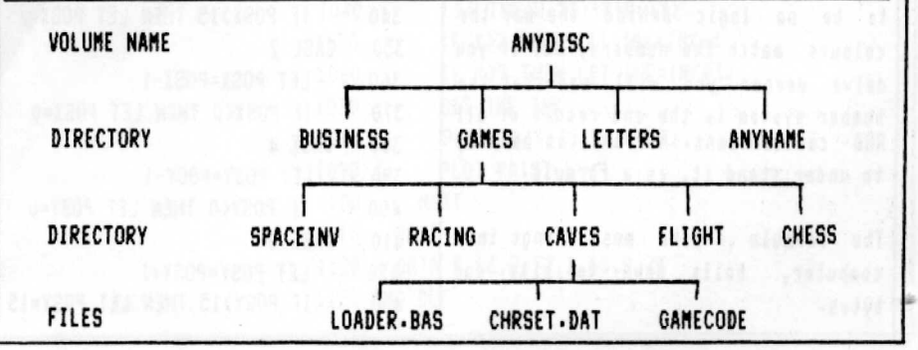
Directories allow you to organise your disc in a logical and easy-to-use way. In effect your disc works something like a filing system, the disc forms the filing cabinet and it is possible to have any number of directories which can be thought of as the cabinet's drawers. Each directory can store any number of files (up to the maximum storage space available) and sub-directories. Thus you could set up a directory for games programs which would contain a number of directories for different types of games and each of these would contain more directories for each game, these would hold the relevant programs for each game. The finished structure might look something like the tree diagram below

Directories are set up by using the command MD, short for Make Directory, followed by the name you want to give the directory. This will only create the directory, to actually get into it the command CD is used, short for Change Directory. If no name is given after CD, the name of the current directory will be given otherwise the specified directory will be entered.

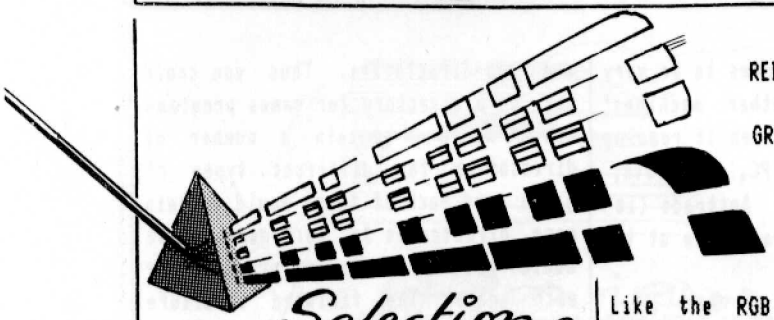
When a disk is formatted a special directory is set up, this is called the root directory and is referred to by the forward slash - "\". Because this is the first directory on the disc, all other directories and files must, by definition, be contained in it. This provides us with a useful reference point, and we can always get back to the root directory by typing
CD \.

Files can be saved in directories other than current one simply by specifying the route from the root directory. For instance, in figure 1 to save a program in CAVES whilst in SPACEINV you would prefix the filename of the program you're saving with :-

\GAMES\CAVES:



Concluded in next issue



Selection

The Enterprise can boast 256 colours. The proper use of these colours can give a picture or game great subtleness and depth. Yet the wrong colours can ruin what might be a masterpiece . The art is choosing the right colours and incorporating them into your program. There are three ways of writing colours into programs; all have their good and bad points.

1) NAME. Eg red, green, yellow. Instantly recognisable but very restricting, giving only 8 colours to choose from.

2) RGB. This command gives you control over how much red, green and blue light is to be present in the colour. It also gives you the advantage of knowing roughly what the colour is going to be, although it is unfortunately very long-winded and difficult to manipulate from within a program.

3) NUMBER. This form of defining a colour only has the advantage of being short and easy to write into your program. It is, however, my personal favorite.

Taking another look at the numbering system, on the face of it there seems to be no logic behind the way the colours match the numbers, but if you delve deeper you will see that the number system is the end result of all RGB calculations. All that is needed, to under stand it, is a formula.

The formula , like most things in a computer, boils down to bits and bytes.

```
RED   =B0*(4/7) + B3*(2/7)
      + B6*(1/7)
GREEN =B1*(4/7) + B4*(2/7)
      + B7*(1/7)
BLUE  =B2*(4/7) + B5*
```

Like the RGB command you decide how much RED, GREEN, and BLUE light is to be present in the colour.

An example of its use:

A bright green is wanted.

```
B0*(4/7)  + B3*(2/7)  + B6*(1/7)  =
```

01001001 = 69

There is still, however, the initial problem to overcome; choosing the right colours. In my experience there is no better way of doing this than by seeing all the colours at once, in a form that graduates the tones evenly over the entire colour range. The following program does just that.

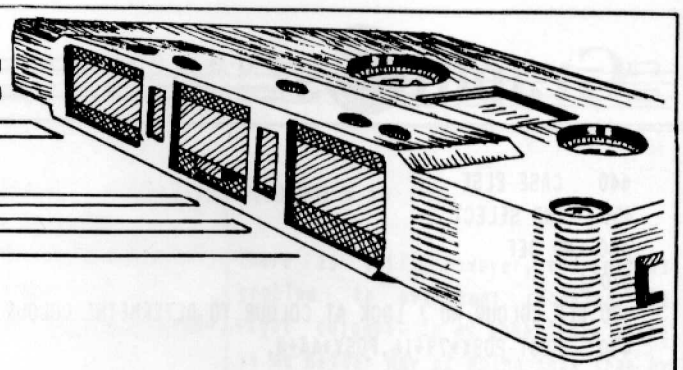
To use the program move the cursor around the colour grid; as you do so the colour is displayed along with its number and the bias colours for that number.

```
100 PROGRAM "colour_select"
110 SET KEY CLICK OFF
120 LET I=8:LET POSX=0:LET POSY=0:LET COLNO=0
130 CALL SET_UP_SCREEN
140 ! MAIN LOOP
150 DO
160   CALL MOVECURSOR
170   CALL PLOTCURSOR
180   CALL COLOUR_NO
190   CALL UPDATE
200 LOOP
210 !
220 DEF PLOTCURSOR ! PLOT THE POSITION OF THE CURSOR
230   SET INK 0
240     PLOT  POSX*79,POSY*44;POSX*79+79,POSY*44;POSX*79+79,POSY*44+44;
POSX*79,POSY*44+44;POSX*79,POSY*44,
250   SET INK 255
260     PLOT  POSX*79,POSY*44;POSX*79+79,POSY*44;POSX*79+79,POSY*44+44;
POSX*79,POSY*44+44;POSX*79,POSY*44,
270 END DEF
280 !
290 DEF MOVECURSOR ! JOYSTICK INPUT ROUTINE
300   LET J=JOY(0)
310   SELECT CASE J
320   CASE 1
330     LET POSX=POSX+1
340     IF POSX>15 THEN LET POSX=15
350   CASE 2
360     LET POSX=POSX-1
370     IF POSX<0 THEN LET POSX=0
380   CASE 4
390     LET POSY=POSY-1
400     IF POSY<0 THEN LET POSY=0
410   CASE 8
420     LET POSY=POSY+1
430     IF POSY>15 THEN LET POSY=15
```

This program available on I.E.U.G's GREATEST HITS vol.1

```
440   CASE ELSE
450   END SELECT
460 END DEF
470 !
480 DEF COLOUR_NO ! LOOK AT COLOUR TO DETERMEINE COLOUR NO
490   PLOT POSX*79+16,POSY*44+8,
500   LOOK £101:COLNO
510 END DEF
520 !
530 DEF UPDATE ! UPDATE COLOUR NO, COLOUR AND BIAS
540   PRINT AT 2,19:COLNO;" "
550   SET £10:BIAS COLNO
560   SET £20:PALETTE COLNO
570 END DEF
580 !
590 DEF SET_UP_SCREEN ! DRAW GRID, COLOUR SQAURE AND BIAS GRID
600   GRAPHICS HIRES 256
610   SET VIDEO MODE 5
620   SET VIDEO COLOUR 2
630   SET VIDEO Y 1
640   OPEN £10:"VIDEO:"
650   SET VIDEO X 10
660   SET VIDEO Y 2
670   OPEN £20:"VIDEO:"
680   SET £10:COLOUR 1,255
690   DISPLAY £10:AT 26 FROM 1 TO 1
700   DISPLAY £20:AT 23 FROM 1 TO 2
710   PRINT AT 2,1:"COLOUR & BIAS NO ="
720   FOR X=0 TO 1279 STEP 158
730     PLOT £10:X,0;X,35,
740   NEXT
750   FOR X=16 TO 1219 STEP 158
760     PLOT £10:X,16,
770     SET £10:INK I
780     PLOT £10:PAINT
790     LET I=I+1
800   NEXT
810   ! THIS BIT PINCHED FROM INTRO TAPE
820   LET C=0
830   DIM R(0 TO 7)
840   FOR Z=0 TO 7
850     READ R(Z)
860   NEXT Z
870   SET INK 255
880   FOR X=0 TO 15
890     PLOT 0,44*X;1279,44*X
900     PLOT 79*X,0;79*X,706
910   NEXT
920   FOR X=0 TO 15
930     IF X>7 THEN
940       LET XX=15-X
950     ELSE
960       LET XX=X
970     END IF
980     FOR Y=0 TO 15
990       IF Y>7 THEN
1000        LET YY=15-Y
1010      ELSE
1020        LET YY=Y
1030      END IF
1040      LET INK=R(XX)+2*R(YY)
1050      IF X>7 THEN LET INK=INK+4
1060      IF Y>7 THEN LET INK=INK+32
1070      SET INK INK
1080      PLOT X*79+30,Y*44+20,
1090      PLOT PAINT
1100    NEXT
1110  NEXT
1120  DATA 0,64,8,72,1,65,9,73
1130 END DEF
```

Software Update



KEY TO RATINGS;

ARCADE and ANIMATED ADVENTURES

GAME CONTENT - Variety of actions / screens

PLAYABILITY - Ease of use, addictive quality

GRAPHICS - Quality and use of graphics related to machine

SOUND - Use of stereo and tune / noise originality.

VALUE FOR MONEY - Overall impression when compared with price.

ADVENTURES

GAME CONTENT - Design of plot / background. Puzzle ingenuity.

PRESENTATION - Atmosphere,graphics (if any), text / screen layout.

INTERACTION - Parser quality, editing facilities

VALUE FOR MONEY - Overall impression when compared with price.

PERCENTAGES

0 - 25 - Yuk, Bleah !
26- 50 - Bad to Mediocre
51- 75 - Average to Good
75-100 - Excellent to completely Brilliant

Teddy bears picnic

Name : NODES OF YESOD
Producer : Odin Computer Graphics
Category : Arcade
Price : £9.95

The Moon has always been assumed (since the Americans historic landing) to be a barren, lifeless place. However, Earth's scientists are throwing a major wobbler at the moment as they have detected coded signals emanating from the Moon detailing all the holes in Earth's defences. These signals have to be stopped, and fate has decreed that you are the man for the job.

Seconds later (or so it seems) you find yourself on the surface of the Moon. Immediately you get the feeling that you are not alone - you are being observed by a Moon Mole ! However, the little blighter is a helpful chap as you will later discover. After fruitless exploration of the surface, you realise the only option you have left is to explore below the surface...

The source of the signals is a monolith hidden somewhere in the subterranean caverns, and in order to destroy it you must collect a set of alchiems (crystals). A simple task, you might think - but there are 256 caverns in the complex ! Also, each cavern contains other lunar lifeforms who aren't quite as well disposed towards you as the mole. Luckily for you, the mole isn't too keen on them either and will beat them up if you let him. The mole is useful for other things too - there are 'soft' walls between some caverns which the mole can eat, thus creating connecting passages.

As well as alchiems, you might be lucky enough to find a spare helmet which will give you an extra life. With each extra life you also get a gravity stick which you can drop by moving the joystick down. These create a gravity field in the cavern where they were dropped and force the monsters to drop towards the ground.

The first thing we noticed about this game when we loaded it in was the title music - brilliant ! Once into the game, you are overwhelmed by the quality and smoothness of the graphics. You play a brilliantly animated spaceman who can move left and right, jump up and perform neat tucked rolls. Nodes of Yesod is a platform game - but what a platform game ! If you've ever seen any of the Ultimate games which people rave about then this compares admirably.

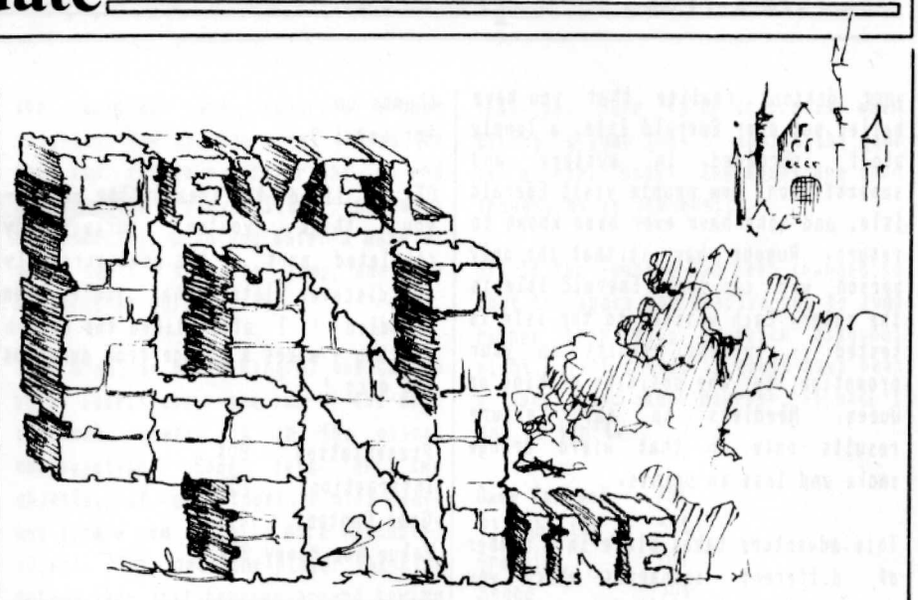
COMMENTS

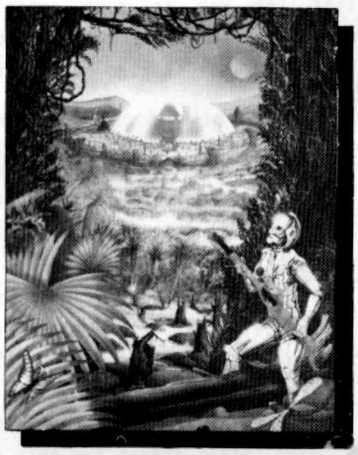
GT. This is one of the best maze/ platform games around, although I found Nodes on the 64 a mite sluggish. Pity the music doesn't play all the way through the game 'cos it's a bit good !

Software Update

NB. Apart from the brilliant music, superb graphics, huge game, etc. it's the humour in the game which impressed me. I mean, how can you ever look yourself in the mirror again after you've been killed by a teddy bear on a spring ? Or ally yourself with a mole which wears braces ?

Game Content	70%
Playability	85%
Graphics	75%
Sound	60%
Value For Money	75%





Name : RETURN TO EDEN
Producer : Level 9
Category : Adventure
Price : £9.95

Return to Eden follows the classic " Snowball" adventure in Level 9's " Silicon Dream" trilogy. Kim Kimberly has just saved the Snowball from certain doom but the crew make a complete bodge of understanding the situation and accuse Kim of sabotage. Sentenced to death, Kim manages to escape in a stratoglider to the planet Snowball is orbiting. This is Eden, Snowball's destination - but for Kim it is a case of out of the frying pan into a nuclear reactor !

While the Snowball was hurtling through space the robot probes have been busy building a city for the colonists. Unfortuntely the plants and animals of Eden objected to the robots presence and a strange war has begun - the native flora and fauna have a tendency to attack anything vaguely resembling a robot.

Once again, Snowball is in danger. The ship has entered orbit around Eden off schedule and without identifying itself. The robot defences, after abortive attempts to contact the ship, have decided the only course of action is its immediate destruction. Kim must reach the city and again attempt to save the Snowball.

This is another highly enjoyable adventure, although it does not capture the atmosphere of the original Snowball. The emphasis is very much humour - the adventure is liberally spread with puns. Real groaners, cringers and "ohh nooo"s (human beans ...blehhhhhhh).

COMMENTS

NB. Science fiction purists expecting the same standard of story in "Eden" as there was in "Snowball" will be disappointed, but do not let this detract in any way from what is another superb game from Level 9.

GT. I recommend this adventure purely for the puns - they are great/awful. I HATE them ! More ! More ! More ! Arrggghhh !

Presentation	80%
Interaction	80%
Game Content	70%
Value For Money	75%



Name : EMERALD ISLE
Producer : Level 9
Category : Adventure
Price : £9.95

You are a pilot, flying urgent documents around the Caribbean. Passing over the Bermuda Triangle, fierce winds seize your aeroplane and force it out of control. You escape by parachuting at the last moment, and on

Software Update

your descent realise that you have bailed out over Emerald Isle, a lonely atoll shrouded in mystery and superstition. Few people visit Emerald Isle, and none have ever been known to return. Rumour has it that the only person who can leave Emerald Isle is the ruler. Each visitor to the isle is tested - success results in your promotion to the position of King or Queen. Needless to say, failure results only in that wierd orange smoke and loss in points.

This adventure takes place in a number of different scenarios which you discover as the island is explored. Initially you are in a forested area on the outskirts of a treetop city. Exploring this fully provides the means to travel to a seaside area, and thence to a number of other regions. One thing I found a bit naughty about this adventure was the fact that you had to negotiate some dark areas without a light source in order to progress - an activity which, in most traditional adventures, is a surefire way to commit suicide.

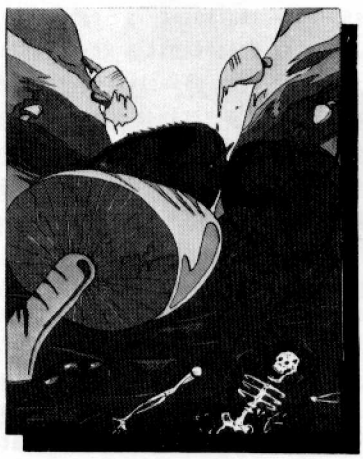
Apart from this quibble, I found Emerald Isle to be a very playable and interesting adventure - although definitely not easy, as was the popular belief upon its release for other machines last year. For instance, there are a number of coins to be found of varying denominations. These can be used to purchase various items during the game. The inhabitants of Emerald Isle are an unscrupulous bunch, however, and if you unsuspetingly pay too much for something you've then lost that money which will affect your chances later in the game - nasty !

COMMENTS

NB. Quite complex but very playable adventure. Lots of items flying about with uses which aren't immediately apparent. I wasn't at all keen on the need to go through the dark caves without a lamp, but overall another thumbs up for Level 9.

GT. I liked the idea of the money - you think you've successfully completed part of the adventure only to discover later that you've been swindled ! I also liked the modern setting - makes a change from dungeons and orcs !

Presentation	80%
Interaction	75%
Game Content	80%
Value For Money	80%



Name : DUNGEON ADVENTURE
Producer : Level 9
Category : Adventure
Price : £9.95

This is the last in the "Middle Earth" trilogy of adventures. Minas Tirith is once again a happy place - the Demon Lord Agaliarept has been blatted (possibly by yourself, if you completed "Adventure Quest") and the orcs have stopped bothering the locals. Most of the people are content to sit back and relax, relishing a time when they are not continuously under threat. However, a few slightly cleverer people have come to the conclusion that since the Demon Lord is dead, his fortress should be unguarded and full of treasure. You provision yourself and start out for the Black Tower. However, about a mile from the tower, you get zapped by a sleep spell and awake later on a riverbank, having been robbed and left to drown. The task ahead of you now looks a touch more difficult ....

If you've played Dungeons and Dragons style adventure games before but thought that something was still lacking, well try this for size... the atmosphere alone is enough to have you believing in goblins and vampires ! Magic abounds, as does Level 9's wonderful/appalling sense of humour. The playing area is absolutely massive, although Level 9 have made it easier for you to move around and deposit treasure in the 'safe room' - check out the packing case and the pedestals.

The whole adventure can be roughly divided into about seven sections - starting with the area just outside the dungeon, and each area more difficult than its predecessor. Unfortunately it is possible to overshoot and jump into areas that are too difficult for you (just like in D& D !). Hopefully you will have saved the game often enough for this to be just a minor bodge.

COMMENTS

GT. This adventure is to fantasy fans what "Snowball" is to sci-fi fanatics. If you think you know how to deal with a skeleton war party without using violence, then this adventure is for you !

NB. Giants, vampires, dragons and a sickeningly cute octopus abound in this huge, difficult yet excellent adventure. Yah boo to the Hobbit, this is the real McCoy !

Presentation	80%
Interaction	70%
Game Content	90%
Value For Money	85%

Software Update

Lance goes to Spriteland

Name : KING OF THE CASTLE
Producer : A.I. Products
Category : Arcade
Price : £7.95

"I ask you, John, what would I give to be a knight after seeing what I've got to go through in 'King of the Castle' ? The miserable decrepit old king is almost ready to cash in his chips but hasn't got an heir. Instead of just asking the biggest hero in the Kingdom, (ie. me) he goes loony and decides to wipe out all the eligable young men in a single blow by announcing this daft contest to decide who marries his daughter. The winner is the chap who presents the most valuable gift to him (thus boosting the dwindling Royal coffers) within 48 hours. Of course, this gift can only be found in the most unpleasant place in the entire Universe, guarded by the meatiest monsters ever seen this side of Hades. I mean, 'Spooky Castle' isn't a place to mess about in, is it John ?" ... and with these profound words the brave Lancelot set off on his quest to the forbidden Spooky Castle to prove his worth and win the hand of the beautiful Lady Alice.

Spooky Castle is in Spriteland and consists of loads of rooms full of platforms and pesky little creatures rushing backwards and forwards getting in your way and sapping your energy. Lancelot, the Magic Knight moves around Spooky Castle by use of the joystick - left and right, and diagonally up left and right to jump. The graphics are fairly fast and smooth but Lancelot is very unresponsive when jumping. The problem is similar to that in "Jack's House of Cards" (see Issue 2) but not quite so bad. In addition to moving about, Lancelot can pick up, drop, examine and trade objects (G,D,E and T keys). There are also a couple of mazes in spooky Castle, and if you enter these the display and controls change slightly. You are now viewing from the top and can move left, right, up and down. The playability increases tremendously when you enter a maze as you don't have to jump and the movement is quite quick.

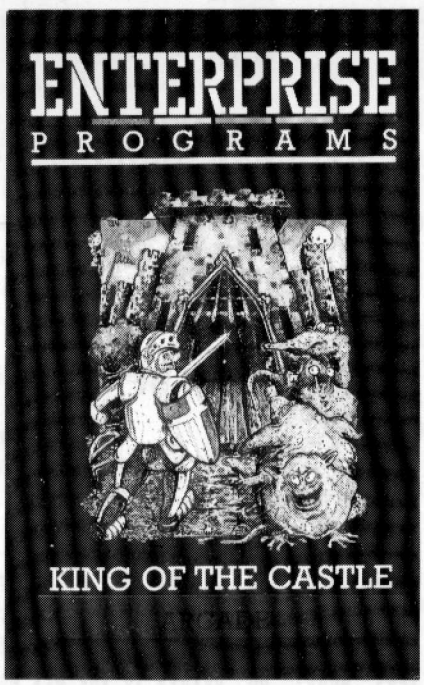
The area in which King of the Castle pulls itself above the run-of-the-mill platform games is in the object manipulation. Some sets of two objects, if put together will react and form a new (usually more valuable) object. This gets the player thinking rather than just bopping around trying to grab as many objects as possible. The trading element is also new to platform games in general - there are a number of traders who will buy items from you and then sell them back to you at inflated prices... umm sorry... sell you other items (if you can afford them).

Finally, the music that plays all the way through King of the Castle is great !

COMMENTS
NB. It's a case of nice game, shame about the jumping I'm afraid. The fact that you have to be so precise when timing a jump that it spoils the game is a real pity. The mazes are good though, as is the music.

GT. If the jumping had been changed so that the space bar enabled you to jump rather than this joystick diagonal right & left stuff, it could have been a very good game. However, it wasn't and it isn't.

Game Content	75%
Playability	50%
Graphics	70%
Sound	70%
Value For Money	55%



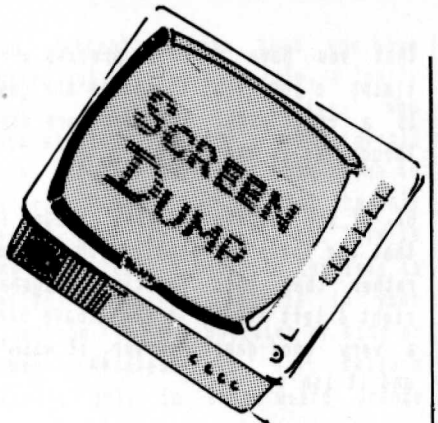
COMMENT

Firstly, we would like to clear Keith Elliot's good name. When we shot our mouths off last issue about Enterprise's reluctance to loan us stuff for review this didn't include EnterSOFT who have always been helpful and cooperative - so stop phoning the poor guy up and calling him rude names please ! In fact, as far as software is concerned, everything has been sorted out with Enterprise to everyone's satisfaction.

Secondly, we would like to welcome the release of EXDOS and IS-DOS and hope that this will mark the release of some disc software, or at least disc versions of forthcoming tape-based releases. At least, development time on various projects should be cut down, so we can hopefully expect some new software earlier than would have been previously possible.

Neil Blaber
Gary Thomson

Utilities



The Enterprise's powerful graphic capabilities give you the opportunity to produce some really astounding pictures; the only problem left is to transfer those pictures to paper and to this end I have written the following program. It can cope with any screen width and any screen height up to a maximum of 28 lines. It also makes an attempt at producing shades of grey by using patterns of dots for colour pages. Unfortunately all this flexibility makes it rather a long routine - about 850 bytes of code and 7k of basic. However, if only one colour mode is needed then the sections of code handling the others can be deleted and replaced by lines like :

```
CODE OUT2COL=HEX$("c9")
```

The method used is to print each column of the screen as a horizontal line on the printer. This means that the picture comes out sideways on the printer but it does make the program much simpler since the printer expects eight bits of pixel information arranged vertically, whereas on the screen they are arranged horizontally. Also in lores modes, each byte of screen memory corresponds to twice as many pixels so each column needs two passes to print the left hand side of the pattern and then the right.

The code for the colour modes is a bit complex as the colour information on the Enterprise is (for some reason known only to the chip designers) strangely stored. In four colour modes, the colour of the four pixels is as follows:

B3+2*B7, B2+2*B6, B1+2*B5, B0+2*B4

where Bn is the nth bit in the screen byte. In sixteen colour modes, it is worse - the colour of the two pixels is :

B1+2*B5+4*B3+8*B7 and B0+2*B4+4*B2+8*B6

In 256 colours, the red part is b6+2*b3+4*b0, the green is b7+2*b4+4*b1 and the blue is b5+2*b2. Note that there are only two bits for blue, so there are only four shades of blue instead of eight as in red and green.

To find out what mode the video page is and where the screen memory is, the program uses two special function calls (rst 48, db 11) which the video driver recognises. To find out page size, mode and colour, use the following piece of code :

```
ld a,channel
ld b,2
rst 48
db 11
```

On return, A will be zero if the call was successful or non-zero if the channel is not a video channel. B will be set to the page width, C to the height, D to the mode and E to the colour. To find out where the video memory is, use the following :

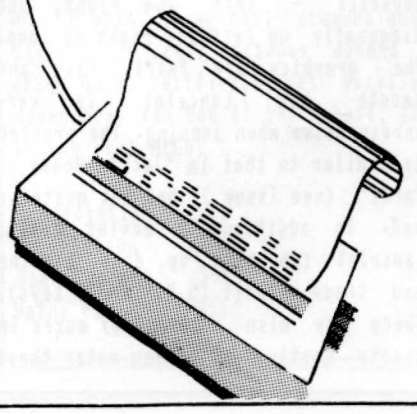
```
ld a,channel
ld b,3
rst 48
db 11
```

On return BC will point to the main video RAM and DE to the secondary video RAM. In hardware text mode, both point to the ascii map. In software text mode, BC points to the bit map and DE to the ascii map. In hires and lores pixel graphics, BC points to the top left of the page and DE is undefined. In attribute mode, BC points to the bit map and DE to the colour information.

The escape sequences used are those for the Epson LX-80 printer (alterations to make the routine work on the EP 80+ and MT 80+ printers. are on lines 4 and 5). The routine will work on any printer that can set its line-feeds to 8 dots (on the LX-80 I used ESC,"A",8) and which prints graphics by first sending an escape sequence followed by a 16 bit number which is the number of bytes of graphics to follow, followed by the graphics bytes where bit 7 corresponds to the top pin on the print head. On the LX-80, I have used the escape sequence ESC,"*",5 which is the 1:1 graphics mode (572 points per line). Also to set line feeds back to normal after printing, the sequence ESC,"2" is used. I think these sequences should work on most Epson compatible printers but if in doubt consult your manual.

Finally after all that - how to use it. Well its very simple, just CALL USR(SCRDUMP,CHANNEL).

D. Rabson



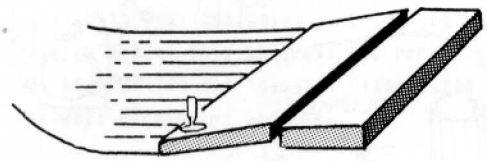
```
  1 ALLOCATE 900
  2 LET SCRDUMP=MCODE
  4 !  9430   CODE =HEX$("3e,4b,cd")&WORD$(OUTB)
  5 !   9435 ! CODE =HEX$("3e,5,cd")&WORD$(OUTB)
 9000 DEF MCODE
 9005   NUMERIC WIDTH,MARGIN,MODE,COLOUR,NYBBLE,WORKSPACE
 9010   NUMERIC PATTERN4_1,PATTERN4_2,PATTERN16_1,PATTERN
16_2
 9015   NUMERIC PATTERN256_R,PATTERN256_G,PATTERN256_B
 9020   NUMERIC OUTB,OUTN,OUT2COL,OUT4COL,OUT16COL,OUT256
COL
 9025   NUMERIC TFRAME,BFRAME,SLINE,ELINE,GETB,START
 9030   !
 9035   CODE WIDTH=WORD$(0) ! width of the video page
 9040   CODE MARGIN=WORD$(0) ! size of the margin on the
printer
 9045   CODE MODE=CHR$(0) ! mode of the video page
 9050   CODE COLOUR=CHR$(0) ! colour of the video page
 9055   CODE SIDE=CHR$(0) ! side of the byte being printe
d in lores modes
 9060   CODE WORKSPACE=HEX$("0,0,0,0")
 9065   CODE PATTERN4_1=HEX$("0,1,3,3") ! 4 colour patter
ns
 9070   CODE PATTERN4_2=HEX$("0,2,2,3")
 9075   CODE PATTERN16_1=HEX$("0,8,a,a,e,7,f,f,0,8,a,a,e,
7,f,f") ! 16 colour
 9080   CODE PATTERN16_2=HEX$("0,2,4,5,5,d,b,f,0,2,4,5,5,
d,b,f")
 9085   CODE PATTERN256_R=HEX$("0,8,24,2a,15,1b,37,3f") !
 256 colour
 9090   CODE PATTERN256_G=HEX$("0,8,24,2a,15,1b,37,3f")
 9095   CODE PATTERN256_B=HEX$("0,4,9,f")
 9100   ! a table used by out2col in lores modes
 9105   CODE TABLE=HEX$("0,3,c,f,30,33,3c,3f,c0,c3,cc,cf,
f0,f3,fc,ff")
 9110   ! output the byte in A to the printer channel (f1
04)
 9115   CODE OUTB=HEX$("c5,d5,f5,47,3e,68,f7,7,f1,d1,c1,c
9")
 9120   ! output a byte of 2 colour information
 9125   CODE OUT2COL=HEX$("f5,3a")&WORD$(MODE)&HEX$("e6,4
,28,20")
 9130   CODE =HEX$("3a")&WORD$(SIDE)&HEX$("b7,20,9")
 9135   CODE =HEX$("f1,1f,1f,1f,1f,e6,f,18,3")
 9140   CODE =HEX$("f1,e6,f,d5,e5,5f,16,0,21")&WORD$(TABL
E)
 9145   CODE =HEX$("19,7e,e1,d1,18,1")
 9150   CODE =HEX$("f1,cd")&WORD$(OUTB)&HEX$("c3")&WORD$(
OUTB)
 9155   ! output a byte of 4 colour information
 9160   CODE OUT4COL=HEX$("c5,d5,e5,f5,3a")&WORD$(MODE)&H
EX$("e6,4,20,3")
 9165   CODE =HEX$("f1,18,28,3a")&WORD$(SIDE)&HEX$("b7,20
,12")
 9170   CODE =HEX$("f1,47,e6,88,4f,1f,b1,4f,78,e6,44,1f,4
7,1f,b0,b1,18,10")
 9175   CODE =HEX$("f1,47,e6,22,17,4f,17,b1,4f,78,e6,11,4
7,17,b0,b1")
 9180   CODE =HEX$("21")&WORD$(WORKSPACE+3)&HEX$("4f,6,4"
)
 9185   CODE =HEX$("e6,11,f5,1f,1f,1f,1f,e6,1,57,f1,e6,1,
17,b2,77")
 9190   CODE =HEX$("2b,cb,9,79,10,ea")
 9195   CODE =HEX$("e,2,21")&WORD$(WORKSPACE+3)
 9200   CODE =HEX$("6,4,7e,d5,e5,5f,79,fe,1,21")&WORD$(PA
TTERN4_1)
 9205   CODE =HEX$("28,3,21")&WORD$(PATTERN4_2)&HEX$("16,
0,19,7e,e1,d1")
 9210   CODE =HEX$("1f,cb,1a,1f,cb,1a,2b,10,e2,7a,cd")&WO
RD$(OUTB)
 9215   CODE =HEX$("d,20,d6,e1,d1,c1,c9")
 9220   ! output a byte of 16 colour information
 9225   CODE OUT16COL=HEX$("c5,d5,e5,f5,3a")&WORD$(MODE)&
HEX$("e6,4,20,3")
 9230   CODE =HEX$("f1,18,14,3a")&WORD$(SIDE)&HEX$("b7,20
,8")
 9235   CODE =HEX$("f1,e6,aa,47,1f,b0,18,6")
 9240   CODE =HEX$("f1,e6,55,47,17,b0")
 9245   CODE =HEX$("21")&WORD$(WORKSPACE+1)&HEX$("4f,6,2"
)
 9250   CODE =HEX$("e6,55,c5,6,4,1f,cb,11,1f,10,fa,79,e6,
f,4f")
 9255   CODE =HEX$("e6,9,47,79,e6,2,17,b0,47,79,e6,4,1f,b
0,c1")
 9260   CODE =HEX$("77,2b,cb,9,79,10,db")
 9265   CODE =HEX$("e,2,23,23,6,2,5e,d5,16,0,e5,79,fe,1")
 9270   CODE =HEX$("21")&WORD$(PATTERN16_1)&HEX$("28,3,21
")&WORD$(PATTERN16_2)
 9275   CODE =HEX$("19,7e,e1,d1,c5,6,4,1f,cb,1a,10,fb,c1,
2b,10,e0")
 9280   CODE =HEX$("7a,cd")&WORD$(OUTB)&HEX$("d,20,d5,e1,
d1,c1,c9")
 9285   ! output a byte of 256 colour information
 9290   CODE OUT256COL=HEX$("c5,d5,e5,1f,cb,10,1f,cb,11,1
f,cb,12")
 9295   CODE =HEX$("1f,cb,10,1f,cb,11,1f,cb,12")
 9300   CODE =HEX$("1f,cb,10,1f,cb,11,78,e6,7,47,79,e6,7,
4f,7a,e6,3,57")
 9305   CODE =HEX$("5a,16,0,21")&WORD$(PATTERN256_B)&HEX$
("19,7e")
 9310   CODE =HEX$("f5,59,21")&WORD$(PATTERN256_G)&HEX$("
19,7e,4f,58")
 9315   CODE =HEX$("21")&WORD$(PATTERN256_R)&HEX$("19,7e,
47,d1")
 9320   CODE =HEX$("cb,18,1f,cb,19,1f,cb,1a,1f,cb,18,1f,c
b,19,1f")
 9325   CODE =HEX$("cb,1a,1f,cb,18,1f,cb,19,1f")
 9330   CODE =HEX$("c5,21")&WORD$(WORKSPACE)&HEX$("46,4,b
7,f,f,10,fc,c1")
 9335   CODE =HEX$("cd")&WORD$(OUTB)
 9340   CODE =HEX$("cb,19,1f,cb,1a,1f,cb,18,1f,cb,19,1f,c
b,1a,1f")
 9345   CODE =HEX$("cb,18,1f,cb,19,1f,cb,18,1f")
 9350   CODE =HEX$("c5,46,4,b7,f,f,10,fc,c1,cd")&WORD$(OU
TB)
 9355   CODE =HEX$("34,7e,e6,3,77")
```

This program available on
I.E.U.G's GREATEST HITS vol.1

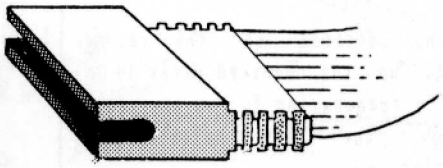
```
 9360   CODE =HEX$("e1,d1,c1,c9")
 9365   ! Output the escape sequence needed at the top of
 the frame -
 9370   ! on the Epson LX-80 it is ESC,"A",8 to set 8 dot
 linefeeds.
 9375   CODE TFRAME=HEX$("3e,1b,cd")&WORD$(OUTB)
 9380   CODE =HEX$("3e,41,cd")&WORD$(OUTB)
 9385   CODE =HEX$("3e,8,c3")&WORD$(OUTB)
 9390   ! Set normal linefeeds at the end of the frame -
ESC,"2".
 9395   CODE BFRAME=HEX$("3e,1b,cd")&WORD$(OUTB)
 9400   CODE =HEX$("3e,32,c3")&WORD$(OUTB)
 9405   ! Set up graphics mode and print the margin. It u
ses the escape
 9410   ! seguence ESC,"*",5,n1,n2 where the number of by
tes of graphics
 9415   ! info to be printed is n1 + 256*n2. It uses the
LX-80's 1:1 graphics
 9420   ! mode as this approximates the screen quite well
.
 9425   CODE SLINE=HEX$("3e,1b,cd")&WORD$(OUTB)
 9430   CODE =HEX$("3e,2a,cd")&WORD$(OUTB)
 9435   CODE =HEX$("3e,5,cd")&WORD$(OUTB)
 9440   CODE =HEX$("d5,e5,8,6f,8,26,0,cb,25,cb,14,ed,5b")
&WORD$(MARGIN)
 9445   CODE =HEX$("19,7d,cd")&WORD$(OUTB)&HEX$("7c,cd")&
WORD$(OUTB)
 9450   CODE =HEX$("7a,b3,28,7,af,cd")&WORD$(OUTB)&HEX$("
1b,18,f5")
 9455   CODE =HEX$("e1,d1,c9")
 9460   ! Print any control chars needed at the end of th
e line - here just
 9465   ! CR,LF.
 9470   CODE ELINE=HEX$("3e,d,cd")&WORD$(OUTB)
 9475   CODE =HEX$("3e,a,c3")&WORD$(OUTB)
 9480   ! Get a byte from the video memory - equivalent t
o the basic line
 9485   ! A = speek(252 + int(HL/16384), HL)
 9490   CODE GETB=HEX$("c5,e5,8,f5,8,db,b3,47,7c,7,7")
 9495   CODE =HEX$("e6,3,c6,fc,d3,b3,cb,f4,cb,fc,7e,8,78,
d3")
 9500   CODE =HEX$("b3,f1,8,e1,c1,c9")
 9505   CODE START=HEX$("7d,6,2,f7,b,b7,c0") ! find out v
ideo mode etc.
 9510   ! and ret if the channel is not a video channel
 9515   CODE =HEX$("7a,e6,1,c8") ! check if its a graphic
s page
 9520   CODE =HEX$("7a,32")&WORD$(MODE) ! store the mode
 9525   CODE =HEX$("7b,32")&WORD$(COLOUR) ! and colour
 9530   ! in 256 colour mode, need to set up the contents
 of wrokspace to 0
 9535   CODE =HEX$("fe,3,20,4,af,32")&WORD$(WORKSPACE)
 9540   ! store the page width and zero the location next
 to it
 9545   CODE =HEX$("78,32")&WORD$(WIDTH)&HEX$("af,32")&WO
RD$(WIDTH+1)
 9550   ! check page is not too big and store the height*
9 (i.e. no. of scan
 9555   ! lines) in A'
 9560   CODE =HEX$("79,fe,1d,d0,b7,17,17,17,81,8")
 9565   ! find out video memory address, calculate addr o
f bottom left
 9570   CODE =HEX$("7d,6,3,f7,b,60,69,8,47,8,5,ed,5b")&WO
RD$(WIDTH)
 9575   CODE =HEX$("19,10,fd,eb")
 9580   CODE =HEX$("af,32")&WORD$(SIDE) ! start on left o
f byte in lores
 9585   ! calculate size of margin ond store it
 9590   ! load C with horizontal loop counter and set up
printer
 9595   CODE =HEX$("d5,e5,21,0,1,8,5f,8,16,0,b7,ed,52")
 9600   CODE =HEX$("22")&WORD$(MARGIN)&HEX$("e1,d1")
 9605   CODE =HEX$("3a")&WORD$(WIDTH)&HEX$("4f,cd")&WORD$
(TFRAME)
 9610   ! set up this line of print
 9615   CODE =HEX$("cd")&WORD$(SLINE)
 9620   ! set HL to base of this column of page and B to
no. of scanlines
 9625   CODE =HEX$("62,6b,8,47,8")
 9630   CODE =HEX$("cd")&WORD$(GETB) ! get a byte of vide
o memory
 9635   ! call appropriate routine depending on colour
 9640   CODE =HEX$("f5,3a")&WORD$(COLOUR)
 9645   CODE =HEX$("b7,20,6,f1,cd")&WORD$(OUT2COL)&HEX$("
18,18")
 9650   CODE =HEX$("fe,1,20,6,f1,cd")&WORD$(OUT4COL)&HEX$
("18,e")
 9655   CODE =HEX$("fe,2,20,6,f1,cd")&WORD$(OUT16COL)&HEX
$("18,4")
 9660   CODE =HEX$("f1,cd")&WORD$(OUT256COL)
 9665   ! finish off this screen column
 9670   CODE =HEX$("d5,ed,5b")&WORD$(WIDTH)&HEX$("b7,ed,5
2,d1")
 9675   CODE =HEX$("10,cd")
 9680   CODE =HEX$("cd")&WORD$(ELINE)
 9685   ! and the rest of the columns
 9690   CODE =HEX$("3a")&WORD$(MODE)&HEX$("e6,4,28,c")
 9695   CODE =HEX$("3a")&WORD$(SIDE)&HEX$("2f,32")&WORD$(
SIDE)
 9700   CODE =HEX$("b7,28,2,18,af")
 9705   CODE =HEX$("13,d,20,ab")
 9710   CODE =HEX$("c3")&WORD$(BFRAME)
 9715   LET MCODE=START
 9720 END DEF
```

REMEMBER- The I.E.U.G need your articles.

Outside Connections



STEREO AMPLIFIER



Those of you who have played 'Starstrike 3D' will appreciate just how much is added to the game when listening to the effects through stereo headphones. This is, however, a little anti-social! What is really needed is a stereo amplifier that is small, so as not to take up to much table space and not mains-powered so as not to take up plug space. Well 'Private Enterprise' (never one to let you down), brings you in this issues 'Outside Connections' a small, compact stereo amplifier that runs on the Enterprises own power supply and can produce a cool 2 Watts of stereo sound.

The circuit is kept simple by a pair of dedicated amplifier IC's: LM 386 N-4's. This IC requires very little external components to operate, thus keeping the size and cost down.

I have chosen 'VERO BOARD' as the medium on which the components are mounted because of the ease of mounting and the low cost. The components could quite easily be mounted on an etched purpose-built board, if you wanted to; providing you have the equipment.

First let's look at the components we need.

IC1, IC2 LM 386 N-4

Capacitors.

C1, C3, C8	100 nF
C2, C7	10 nF
C4, C5, C9, C10	47 v
C6, C11	50 nF

Resistors

R1, R2	10 ohm
VR1	22K + 22K Twin gang Log Pot

Plugs and sockets.

PL1	2.1 mm Power jack plug
PL2	3.5 mm Stereo jack plug
SK1	2.1 mm Power socket

PCB

VERO BOARD Approx 90*60 mm

Speakers 4 or 8 ohms

Case for components and speakers

Before purchasing the above components take into consideration a couple of things. (1) Are you going to mount the board in a separate box or in the speaker cabinet (more on this later).(2) Do you want separate volumes controls for each channel, in which case you would require two 22k Log potentiometers.

These components are commonly available and there should be no trouble in purchasing them.

No problems are likely to be encountered when mounting the components onto the VERO BOARD, though it might be an idea to solder the two IC's in last to prevent overheating as you mount the others around it.

Once you have the main components mounted, the power and speaker leads etc should be connected. By this point you should decided what type of arrangement you want for the cases. Fig 3 is the standard arrangement and Fig 4 is an alternative setup. The advantage with Fig 4 is; there are no extra boxes at the back of the computer and there is only one cable for both the power and stereo signals. (I, personally, have opted for this arrangement, as it is the neatest.)

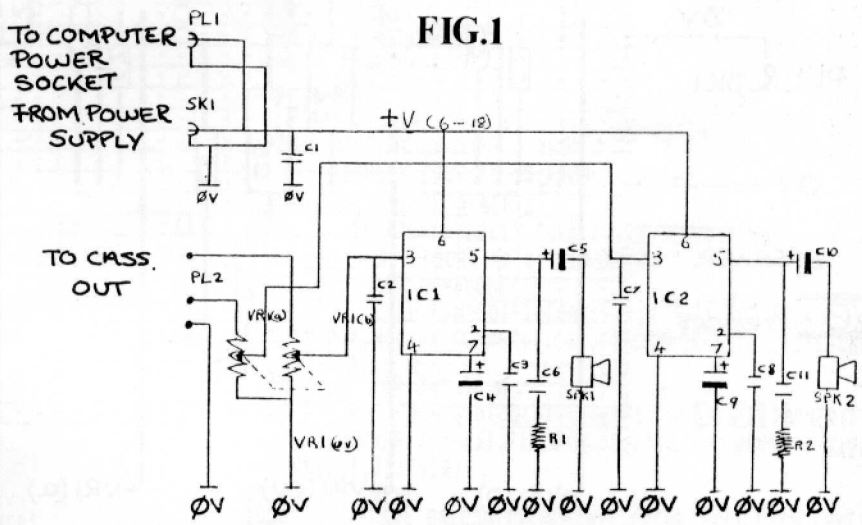


FIG.1

Outside Connections

Having decided on the casing, connect up the required wires to the board - remembering to run any cables through the case holes before soldering up.

NOTE. Before testing check, double check and treble check. 10-15 mins spent looking over the lay out and soldering beforehand might save you a lot of time in the event of a component being damaged.

When you have built and tested the amp, load in your favorite game, turn up the sound and you can be sure the world will know every time an alien bites the dust.

Tim Box

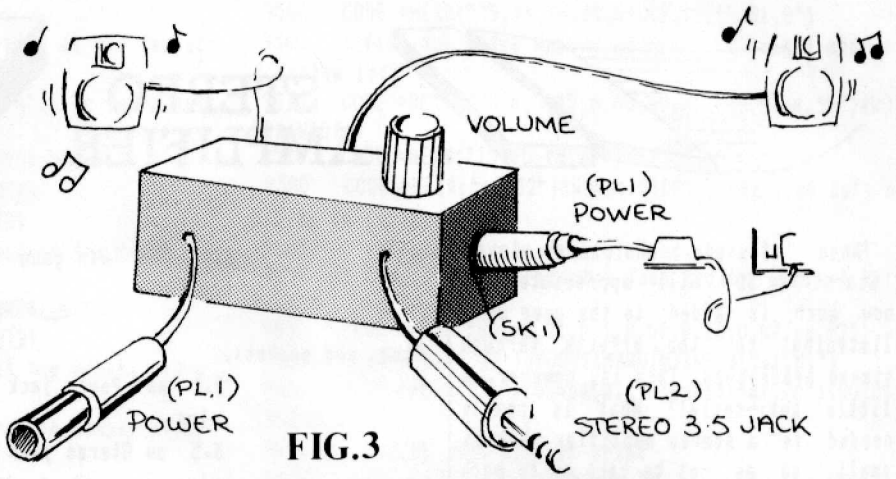


FIG.3

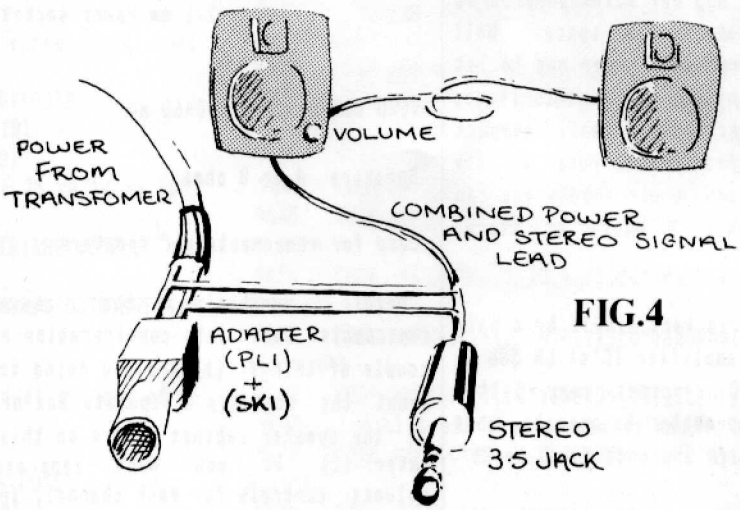


FIG.4

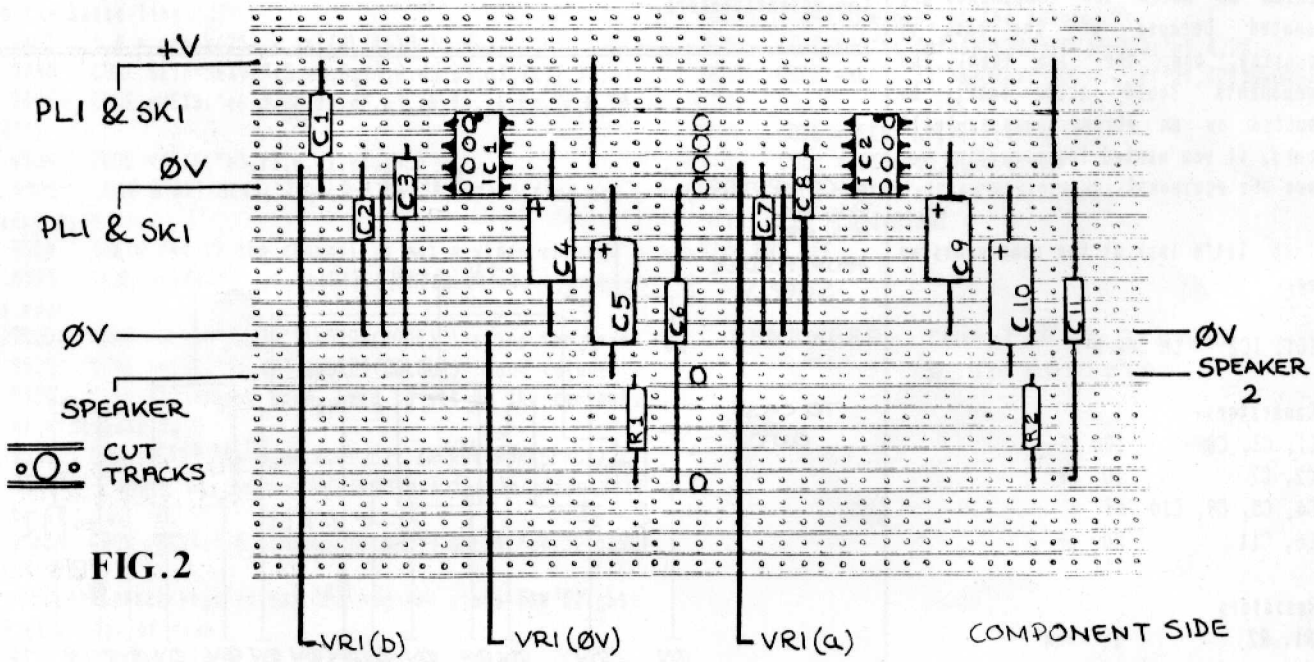
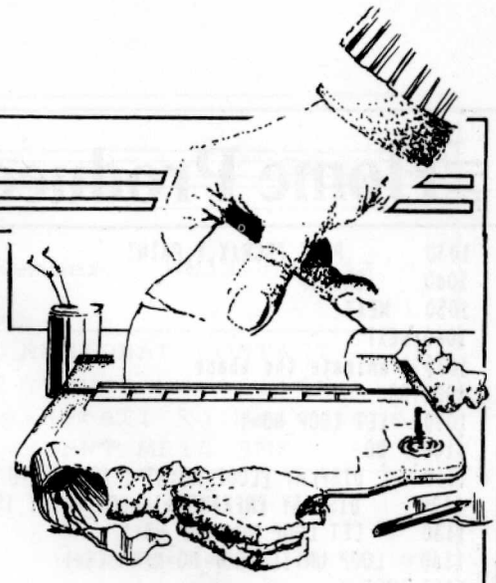


FIG.2

Home Produce



Over 70% of the past Home Produce has been one type or another of graphic demo. With no apologies we bring you what must be the ultimate in basic graphic demos. This programs end result is not only worthy of praise, but the program itself demands recognition. It is an excellent example of a very well documented program.

The result is a pair of rotating 14-sided cuboids, complete with shadow shading. The animation is created by drawing the different stages of rotation in a sequence of video pages, then displaying them one after another.

```
100 PROGRAM "hidden surfaces"
110 ! By D. Rabson 1985
120 !
130 ! This program will rotate
140 ! convex shapes using hidden
150 ! surface removal.
160 NUMERIC OX,OY,OZ,SOX,SOY,S
170 OPTION ANGLE DEGREES
180 LET CS=COS(6.4)
190 LET SN=SIN(6.4)
200 SET VIDEO X 15
210 SET VIDEO Y 12
220 SET VIDEO MODE 1
230 SET VIDEO COLOUR 2
240 LET NFRAMES=30
250 WHEN EXCEPTION USE ENT64
260   FOR I=1 TO NFRAMES
270     OPEN £I:"video:"
280     SET £I:PALETTE 0,128,16,144,2,130,18,146
290   NEXT
300 END WHEN
310 LET NFRAMES=I-1
320 CLEAR SCREEN
330 NUMERIC SX(1 TO 50),SY(1 TO 50),SZ(1 TO 50)
340 ! fx, fy and fz contain the coordinates after they
 have been rotated
350 ! corner contains information about what corners e
ach facet has
360 NUMERIC FX(1 TO 50),FY(1 TO 50),FZ(1 TO 50),CORNER
(1 TO 20,1 TO 10)
370 ! nedges is the number of edges in each facet and
displayed holds the colour of the facet when it is displ
ayed
380 NUMERIC NEDGES(1 TO 20),DISPLAYED(1 TO 20)
390 CALL SETUP ! set up origin etc.
400 !
410 ! read in the data
420 READ NC,NFACETS
430 FOR I=1 TO NC
440   READ SX(I),SY(I),SZ(I)
450 NEXT
460 FOR I=1 TO NFACETS
470   READ NEDGES(I)
480   READ SX(NC+2*I-1),SY(NC+2*I-1),SZ(NC+2*I-1)
490   LET X,Y,Z=0
500   FOR J=1 TO NEDGES(I)
510     READ CORNER(I,J)
520     LET X=X+SX(CORNER(I,J))
530     LET Y=Y+SY(CORNER(I,J))
540     LET Z=Z+SZ(CORNER(I,J))
550   NEXT
560   ! calculate the centre of the facet
570   LET SX(NC+2*I)=X/NEDGES(I)
580   LET SY(NC+2*I)=Y/NEDGES(I)
590   LET SZ(NC+2*I)=Z/NEDGES(I)
600 NEXT
610 ! rotate shape...
620 LET ROTATION_ANGLE=90/NFRAMES
630 FOR SCR=1 TO NFRAMES
640   LET CS=COS(ROTATION_ANGLE*SCR)
650   LET SN=SIN(ROTATION_ANGLE*SCR)
660   FOR I=1 TO NC+2*NFACETS
670     LET X=SX(I)
680     LET Y=SY(I)
690     CALL ROTATE(X,Y)
700     LET FX(I)=X
710     LET FY(I)=Y
720     LET FZ(I)=SZ(I)
730   NEXT
740   ! which facets to display ?
750   FOR I=1 TO NFACETS
760     ! this bit's some vicious maths - don't worry
about it
770     ! basically it decides whether the facet is fa
cing towards the viewpoint or away from it
780     LET X1=FX(NC+2*I)-OX
790     LET Y1=FY(NC+2*I)-OY
800     LET Z1=FZ(NC+2*I)-OZ
810     LET X2=FX(NC+2*I-1)
820     LET Y2=FY(NC+2*I-1)
830     LET Z2=FZ(NC+2*I-1)
840     LET COL=(X1*X2+Y1*Y2+Z1*Z2)/SQR((X1*X1+Y1*Y1+Z
1*Z1)*(X2*X2+Y2*Y2+Z2*Z2))
850     IF COL<0 THEN
860       LET DISPLAYED(I)=-INT(.5+7*COL)
870     ELSE
880       LET DISPLAYED(I)=0
890     END IF
900   NEXT
910   ! display them then ...
920   DISPLAY £SCR:AT 1 FROM 1 TO 12
930   DISPLAY £SCR:AT 15 FROM 1 TO 12
940   FOR I=1 TO NFACETS
950     IF DISPLAYED(I) THEN ! i.e. colour non zero
960       SET £SCR:INK DISPLAYED(I)
970       LET N=NEDGES(I)
980       CALL LINE3D(FX(CORNER(I,N)),FY(CORNER(I,N)),
FZ(CORNER(I,N)),FX(CORNER(I,1)),FY(CORNER(I,1)),FZ(CORNE
R(I,1)),SCR)
990       FOR J=2 TO N
1000        CALL LINE3D(FX(CORNER(I,J-1)),FY(CORNER(I,
J-1)),FZ(CORNER(I,J-1)),FX(CORNER(I,J)),FY(CORNER(I,J)),
FZ(CORNER(I,J)),SCR)
1010      NEXT
1020      CALL CALC3D(FX(NC+2*I),FY(NC+2*I),FZ(NC+2*I)
,X,Y)
```

Home Produce

```
1030       PLOT £SCR:X,Y,PAINT
1040     END IF
1050   NEXT
1060 NEXT
1070 ! animate the shape
1080 DO
1090   LET LOOP_NO=1
1100   DO
1110     DISPLAY £LOOP_NO:AT 1 FROM 1 TO 12
1120     DISPLAY £NFRAMES+1-LOOP_NO:AT 15 FROM 1 TO 12
1130     LET LOOP_NO=LOOP_NO+1
1140   LOOP UNTIL LOOP_NO=NFRAMES+1
1150 LOOP
1160 DATA 12 ! number of corners in the shape
1170 DATA 14 ! number of facets
1180 ! next the corners of the shape expressed as coord
inate triples
1190 DATA 0,-1,-1,1,0,-1,0,1,-1,-1,0,-1
1200 DATA 1,-1,0,1,1,0,-1,1,0,-1,-1,0
1210 DATA 0,-1,1,1,0,1,0,1,1,-1,0,1
1220 ! then the data for each facet which consists of t
he number of corners in the facet followed by a normal t
o the facet and the index of each corner
1230 DATA 4,0,-1,0,1,5,9,8
1240 DATA 4,0,0,-1,1,2,3,4
1250 DATA 4,-1,0,0,8,4,7,12
1260 DATA 4,1,0,0,5,2,6,10
1270 DATA 4,0,1,0,3,6,11,7
1280 DATA 4,0,0,1,9,10,11,12
1290 DATA 3,-1,-1,-1,1,4,8
1300 DATA 3,1,-1,-1,1,2,5
1310 DATA 3,-1,-1,1,8,9,12
1320 DATA 3,-1,1,-1,3,4,7
1330 DATA 3,1,-1,1,9,10,5
1340 DATA 3,-1,1,1,7,11,12
1350 DATA 3,1,1,-1,2,3,6
1360 DATA 3,1,1,1,6,10,11
1370 DEF ROTATE(REF X,REF Y)
1380   ! Rotate X and Y about the origin. This assumes
CS and SN are set up to the cos and sin of the angle of
rotation
1390   NUMERIC TX,TY
1400   !
1410   LET TX=X*CS-Y*SN
1420   LET TY=X*SN+Y*CS
1430   LET X=TX
1440   LET Y=TY
1450 END DEF
1460 DEF SETUP
1470   ! sets up the origin, scale and screen origin
1480   LET OX=0
1490   LET OY=-8
1500   LET OZ=3
1510   LET S=1000
1520   LET SOX=240-OX*S/OY
1530   LET SOY=216-OZ*S/OY
1540 END DEF
1550 !
1560 ! intersect returns the point at which the line th
rough (x1,y1) and (x2,y2) intersects the line y=k
1570 DEF INTERSECT(X1,Y1,X2,Y2,K)=Y1+(Y2-Y1)*(K-X1)/(X2
-X1)
1580 !
1590 DEF CLIP(REF X1,REF Y1,REF X2,REF Y2,XL,XR)
1600   ! Truncates the line from (x1,y1) to (x2,y2) to
fit between the limits xl and xr. Used to ensure lines a
re not drawn off screen
1610   IF X1>X2 THEN
1620     CALL SWAP(X1,X2)
1630     CALL SWAP(Y1,Y2)
1640   END IF
1650   IF X1<XL THEN
1660     LET Y1=INTERSECT(X1,Y1,X2,Y2,XL)
1670     LET X1=XL
1680   END IF
1690   IF X2>XR THEN
1700     LET Y2=INTERSECT(X1,Y1,X2,Y2,XR)
1710     LET X2=XR
1720   END IF
1730 END DEF
1740 !
1750 DEF LINE(X1,Y1,X2,Y2,CHAN)
1760   ! draws a line from (x1,y1) to (x2,y2) on channe
l chan, clipping the parts which are off screen
1770   LET X1=INT(X1)
1780   LET Y1=INT(Y1)
1790   LET X2=INT(X2)
1800   LET Y2=INT(Y2)
1810   IF X1=X2 THEN
1820     IF X1<0 OR X1>479 THEN EXIT DEF
1830     CALL CLIP(Y1,X1,Y2,X2,0,431)
1840   ELSE IF Y1=Y2 THEN
1850     IF Y1<0 OR Y1>431 THEN EXIT DEF
1860     CALL CLIP(X1,Y1,X2,Y2,0,479)
1870   ELSE
1880     CALL CLIP(X1,Y1,X2,Y2,0,479)
1890     IF (Y1<0 AND Y2<0) OR(Y1>431 AND Y2>431) THEN
EXIT DEF
1900     CALL CLIP(Y1,X1,Y2,X2,0,431)
1910   END IF
1920   PLOT £CHAN:X1,Y1;X2,Y2
1930 END DEF
1940 !
1950 DEF SWAP(REF A,REF B)
1960   NUMERIC T
1970   LET T=A
1980   LET A=B
1990   LET B=T
2000 END DEF
2010 !
2020 DEF CALC3D(X,Y,Z,REF SX,REF SY)
2030   ! calculate the screen coordinates of (x,y,z)
2040   LET SX=SOX+S*(X-OX)/(Y-OY)
2050   LET SY=SOY+S*(Z-OZ)/(Y-OY)
2060 END DEF
2070 !
2080 DEF LINE3D(X1,Y1,Z1,X2,Y2,Z2,CHAN)
2090   ! draw a line in 3d from (x1,y1,z1) to (x2,y2,z2
) on channel chan
2100   NUMERIC SX1,SY1,SX2,SY2
2110   CALL CALC3D(X1,Y1,Z1,SX1,SY1)
2120   CALL CALC3D(X2,Y2,Z2,SX2,SY2)
2130   CALL LINE(SX1,SY1,SX2,SY2,CHAN)
2140 END DEF
2150 HANDLER ENT64
2160   !  WHEN AN EXCEPTION IS CAUSED BY LACK OF VIDEO
RAM THIS EXEPTION HANDLER CONTINUES THE PROGRAM
2170   IF EXTYPE=9264 THEN
2180     LET NFRAMES=I-1
2190     GOTO 320
2200   END IF
2210 END HANDLER
```

This program is available on I.E.U.G's GREATEST HITS vol.1

D.Rabson

REMEMBER, The I.E.U.G need your 'Home Produce'.

User Group Activities

Ever wished you could meet other user group members? Well now it's easy.

Option No 1.
Come to the second I.E.U.G meeting 19th of April. (More information below.)

1st REGIONAL CONTACT
Steven Antcliff,
2, Hatherall Rd, Maidstone
KENT ME14 5ME

Option No 2.
Get in touch with members in your area!
This is not as hard as it may seem; all you need to do is drop a line at the address below, stating your name and address. Then next issue, your particulars will be printed on this page, thus enabling other members to write to you and arrange meetings etc. If later on you find things are going well, we might be able to provide funding for larger meetings or perhaps a special project. Remember all that you need do is drop us a line.

LONDON MEETING RETURNS

Flushed with the success of the first I.E.U.G meeting in London last November we are organising another one the 19th of April 1986. This will take place at the same venue as the previous meeting. Directions below.

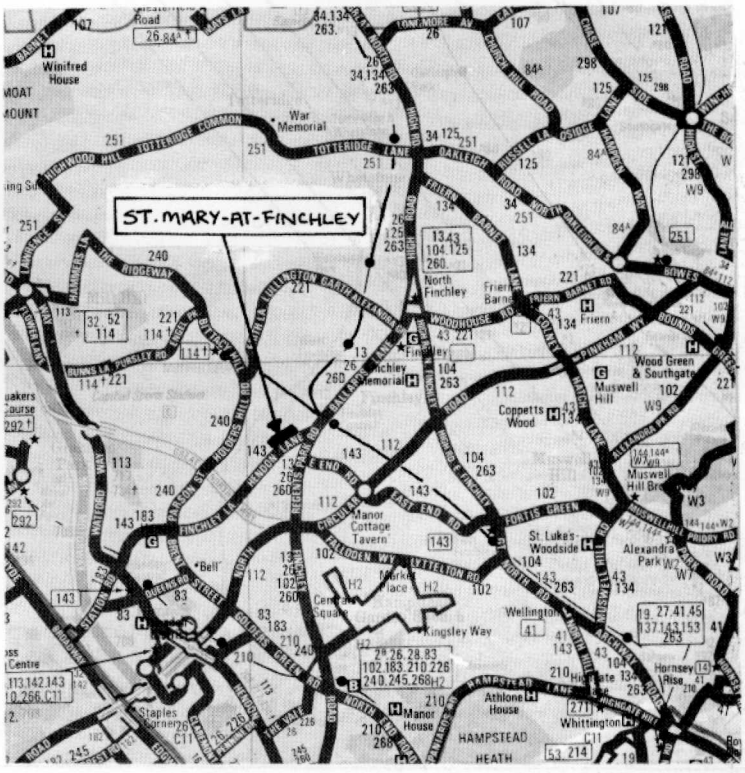
On display (apart from us) will be a large selection of software and hardware and hopefully a few surprise software packages. Those of you living in London, or near by, with transport, can bring their own machines down. We also want to see your software. Bring it down to the meeting so everyone can wow at it. (Tape or Disk).

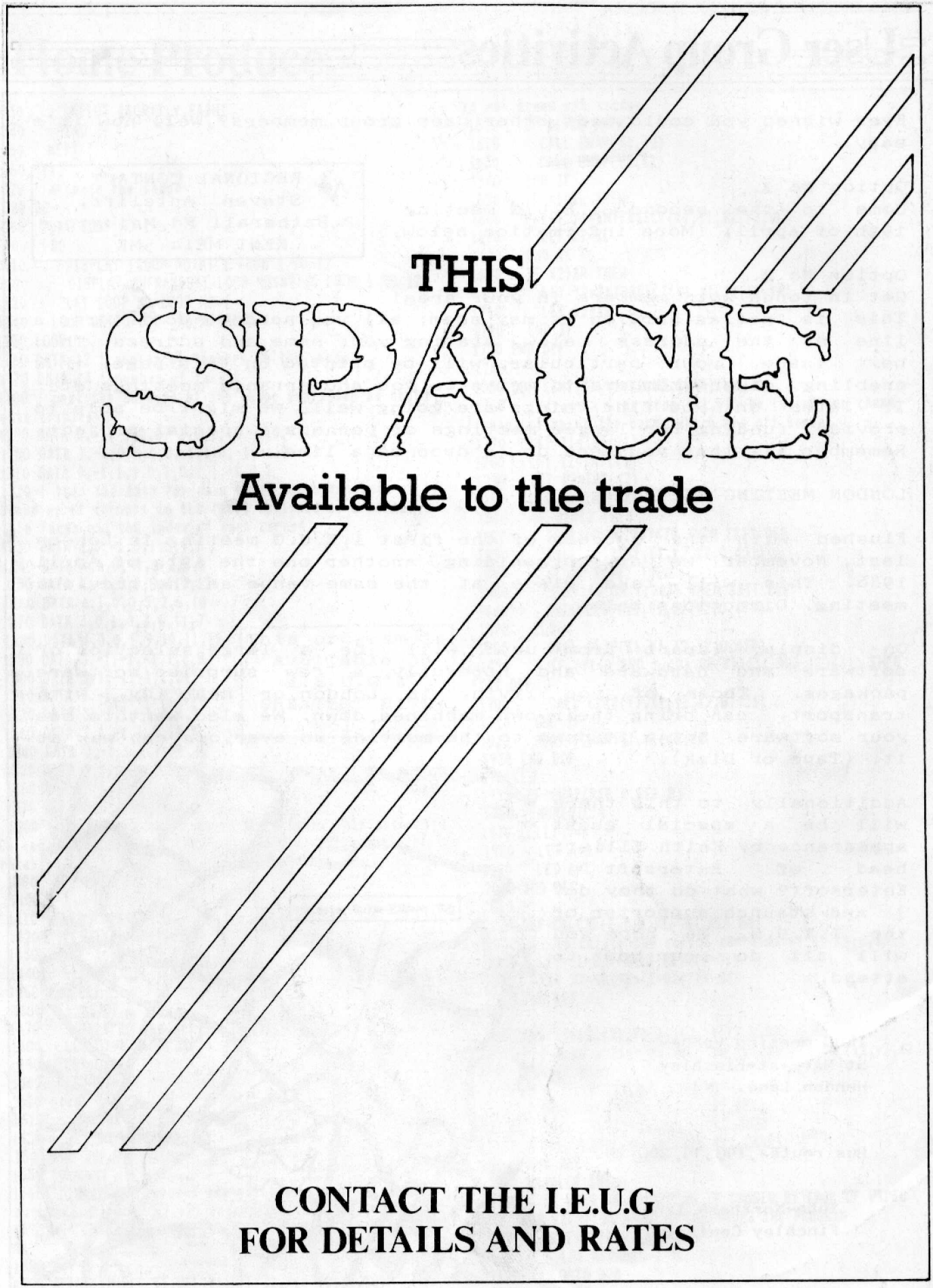
Additionally to this there will be a special guest appearance by Keith Elliot, head of Entersoft (Entersoft? what do they do?) and staunch supporter of the I.E.U.G. We hope you will all do your best to attend.

IEUG meeting venue-
St Mary-at-Finchley,
Hendon Lane. N3.

Bus routes, 143, 13, 260, 26.

Tube-Northern line,
Finchley Central.





CONTACT THE I.E.U.G
FOR DETAILS AND RATES